

heath underneath iron.

### *Pseudechis australis*

Two specimens caught: one from underneath pieces of corrugated sheet iron with *Olearia axillaris*, the other was caught active at night in an unused shed at the homestead.

## REFERENCES

- STORR, G.M. & HAROLD, G. 1978. Herpetofauna of the Shark Bay Region. Western Australia. *Rec. West. Aust. Mus.* 6: 449-466.
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## BUD AUTOGAMY IN *OROBANCHE* L. (OROBANCHACEAE)

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*Orobanche* is a cosmopolitan genus of 140 species of flowering plants, which are obligate root parasites. Members of the genus are predominantly northern hemisphere in distribution, and only one native species (*Orobanche australiana* F. Muell. ex Tate) is recorded for Western Australia. Green (1981) also records the cosmopolitan *O. minor* Sm., but the collection on which this record is based is *O. australiana* (which is very closely related to *O. minor*). *Orobanche australiana* is widespread throughout southern Western Australia and South Australia, parasitic on a wide range of native and naturalized plants.

*Orobanche australiana* is an annual herb, which is only apparent when the fleshy underground stem (a bulb like structure, which stores food to produce an inflorescence, but dies after seeds are formed - K. Dixon, pers. comm.) sends up an inflorescence during spring. The inflorescence is brown/purple in colour, to 20 cm tall, bearing a spike of brown purple flowers.

Kuijtt (1969) noted that members of the genus *Orobanche* are adapted for cross pollination, having flowers which are conspicuous, with contrasting colours around the floral entry and the usual two lipped condition of blossom visited by bees or bumble bees. However, actual observational data appears very rare, none is mentioned by Beck - Mannagetta (1930) and I was not able to locate any. Obviously considerable study is needed on the genus, but Visser (1981) does note that bees pollinate *Orobanche* in South Africa (without reference to any other study), so perhaps the information exists but is still largely anecdotal in nature.

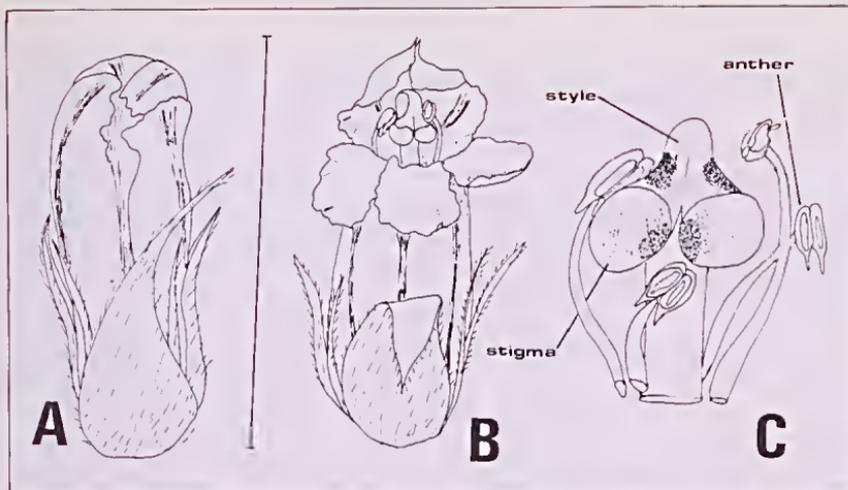
Some rare exceptions from cross pollination do occur in the genus. Jensen (1951) has demonstrated that parthenogenesis (seed setting without fertilization) occurs in some populations of *Orobanche uniflora* L. Kuijtt (1969) has found that the same species is capable of autogamy (seed setting by self pollination) if pollination does not occur.

In general the major reference works on the family and/or genus, appear to assume that the vast majority of species are cross pollinated, even if actual studies are few.

In *Orobanche australiana* the flowers mature from the base of the inflorescence, and only 2-4 open flowers are found on any given inflorescence. Immediately above these open flowers are the large still closed buds which will replace these flowers as they fade. In these buds (Fig. 1,a) the anthers dehisce while elongating and place pollen onto the style and stigma (Fig 1,e). The stigma also matures before the bud opens, as pollen grains removed from the stigmatic surface at this stage and examined under a suitable microscope are found to be germinating.

Sections of styles (fixed in F.A.A. stained in aniline blue and examined using a fluorescent microscope) examined just prior to flower opening were found to contain numerous pollen tubes. Thus, flowers are self pollinated (and many ovules probably fertilized) before the flower opens and a chance for cross pollination occurs.

Bud autogamy has been observed in 20 populations of *Orobanche australiana* (from Geraldton, Moora, Perth (4), Tutanning, Bunbury, Busselton, Augusta, Pemberton, Windy Harbour, Denmark, Albany, Mt. Barker, Cheynes Beach, Quairading, Jerramungup, Hopetoun and Esperance) studied from southern Western Australia. In all cases whole plants (including the bulb like storage



**Figure 1.** *Orobanche australiana* flower.

a : Flower bud at anther dehiscence stage

b : Open flower

c : Style/stigma in closed bud, showing placement of pollen (dots) - magnification x 10.

a - b: Scale bar = 15mm.

organ) were brought back to an insect proof growth cabinet, where the stored food reserves enabled flowering and fruit production to be completed, to demonstrate conclusively that the plants were self fertile, in all cases.

Open flowers of *Orobanche australiana* (Fig. 1, b) are relatively inconspicuous (being dull brown and purple in colour) and lack nectar or scent. No insect visits to a series of flowers observed irregularly for 18 hours over 18 days at Kings Park were recorded. However, since self pollination had already occurred such visits (unless made very shortly after flower opening, when self fertilization of all ovules may not have occurred, and some cross pollen could produce pollen tubes to fertilize some ovules) are probably superfluous.

Currently, these observations constitute a unique breeding system for a species of the genus *Orobanche*. Complementary studies on overseas species would be highly desirable. The author would also appreciate receiving whole live plants from any locality within Western Australia, to expand the distributional data and breeding system data on this unusual species.

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VISSER, J. 1981. *South African parasitic flowering plants*. Juta and Co. Cape Town.

#### A COMPARISON OF TWO CLIMBING PLANT SPECIES (ONE NATIVE AND ONE EXOTIC) AT WOODMAN POINT, WESTERN AUSTRALIA.

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#### ABSTRACT

The distribution of *Asparagus asparagoides* and *Clematis microphylla* at Woodman Point, Western Australia is discussed in relation to seed germination characteristics. *A. asparagoides* is able to establish faster at the same time of the year as *C. microphylla*; its seed is more viable and it can germinate at higher temperatures than *C. microphylla*.